

**WHAT IS CLAIMED IS:**

1        1. A method of making a cathode for a primary lithium battery comprising  
2 coating an expanded metal grid including aluminum with a composition including a cathode  
3 active material.

1        2. The method of claim 1, wherein the composition is a slurry.

2        3. The method of claim 1, wherein the cathode active material includes a  
3 manganese dioxide, a  $\text{CF}_x$ , iron disulfide, or a vanadate.

1        4. The method of claim 1, wherein the composition includes a carbon source.

1        5. The method of claim 4, wherein the carbon source includes a carbon fiber, a  
2 graphite, an acetylenic carbon, or a combination thereof.

1        6. The method of claim 1, wherein the composition includes a binder.

1        7. The method of claim 6, wherein the binder includes an organic polymer.

1        8. The method of claim 1, wherein the grid includes a 1000 series aluminum, a  
2 2000 series aluminum alloy, a 3000 series aluminum alloy, a 5000 series aluminum alloy, a  
3 6000 series aluminum alloy, or a 7000 series aluminum alloy.

1        9. The method of claim 1, wherein the grid includes a 6000 series aluminum  
2 alloy.

1        10. The method of claim 1, wherein the grid includes an aluminum alloy  
2 including 0-0.4% by weight of chromium.

1        11. The method of claim 1, wherein the grid includes an aluminum alloy  
2 including 0.01-6.8% by weight of copper.

1        12. The method of claim 1, wherein the grid includes an aluminum alloy  
2 including 0.05-1.3% by weight of iron.

1           13. The method of claim 1, wherein the grid includes an aluminum alloy  
2 including 0.1-7% by weight of magnesium.

1           14. The method of claim 1, wherein the grid includes an aluminum alloy  
2 including 0-2% by weight of manganese.

1           15. The method of claim 1, wherein the grid includes an aluminum alloy  
2 including 0-2% by weight of silicon.

1           16. The method of claim 1, wherein the grid includes an aluminum alloy  
2 including less than 0.25% by weight of titanium.

1           17. The method of claim 1, wherein the grid includes an aluminum alloy  
2 including 0-8.2% by weight of zinc.0-2.3% by weight of nickel,

1           18. The method of claim 1, wherein the grid includes an aluminum alloy  
2 including 0-2.3% by weight of nickel.

1           19. The method of claim 1, wherein the grid has a resistivity of less than 100  
2 mΩ/cm.

1           20. The method of claim 1, wherein the grid has a resistivity of less than 10  
2 mΩ/cm.

1           21. The method of claim 1, further comprising pulling the grid before coating.

1           22. The method of claim 1, further comprising leveling the grid before coating.

1           23. The method of claim 1, further comprising drying the grid after coating.

1           24. The method of claim 23, further comprising calendering the grid after drying.

1           25. The method of claim 24, wherein calendering includes passing the grid  
2 through a gap.

1           26. The method of claim 25, wherein the gap has a thickness of less than 25 mils.

1           27. The method of claim 26, further comprising heat treating the grid after  
2 calendering.

1           28. The method of claim 27, further comprising drying the grid under vacuum  
2 after heat treating.

1           29. The method of claim 9, wherein the composition is a slurry.

1           30. The method of claim 9, wherein the cathode active material includes a  
2 manganese dioxide, a  $\text{CF}_x$ , iron disulfide, or a vanadate.

1           31. The method of claim 9, wherein the composition includes a carbon source.

1           32. The method of claim 31, wherein the carbon source includes a carbon fiber, a  
2 graphite, an acetylenic carbon, or a combination thereof.

1           33. The method of claim 9, wherein the composition includes a binder.

1           34. The method of claim 31, wherein the binder includes an organic polymer.

1           35. The method of claim 9, further comprising pulling the grid before coating.

1           36. The method of claim 9, further comprising leveling the grid before coating.

1           37. The method of claim 9, further comprising drying the grid after coating.

1           38. The method of claim 37, further comprising calendering the grid after drying.

1           39. The method of claim 38, wherein calendering includes passing the grid  
2 through a gap.

1           40. The method of claim 39, wherein the gap has a thickness of less than 25 mils.

1           41. A method of making a cathode for a battery comprising:  
2           coating an expanded metal grid including an aluminum alloy with a composition  
3           including a carbon source, a binder, and a cathode active material, wherein the cathode active  
4           material includes a manganese dioxide;

5           calendering the grid after coating; and  
6           heat treating the grid after calendering.

1           42.       The method of claim 41, wherein calendering includes passing the grid  
2       through a gap.

1           43.       The method of claim 42, wherein the gap has a thickness of less than 25 mils.

1           44.       The method of claim 43, further comprising drying the grid after coating and  
2       before calendering.

1           45.       The method of claim 41, further comprising sizing the grid after calendering.

1           46.       The method of claim 41, further comprising edge-cleaning the grid after  
2       calendering.

1           47.       The method of claim 41, further comprising drying the grid under vacuum  
2       after heat treating.

1           48.       The method of claim 41, wherein the aluminum alloy is a 2000 series  
2       aluminum alloy, a 3000 series aluminum alloy, a 5000 series aluminum alloy, a 6000 series  
3       aluminum alloy, or a 7000 series aluminum alloy.

1           49.       The method of claim 41, wherein the aluminum alloy is a 6000 series  
2       aluminum alloy.

1           50.       The method of claim 41, wherein the aluminum alloy including 0-0.4% by  
2       weight of chromium, 0.01-6.8% by weight of copper, 0.05-1.3% by weight of iron, 0.1-7%  
3       by weight of magnesium, 0-2% by weight of manganese, 0-2% by weight of silicon, less than  
4       0.25% by weight of titanium, 0-2.3% by weight of nickel, and 0-8.2% by weight of zinc.

1           51.       The method of claim 41, further comprising pulling the grid before coating.

1           52.       The method of claim 41, wherein the binder includes an organic polymer.

1           53.       The method of claim 52, wherein the binder includes  
2       poly(tetrafluoroethylene), poly(vinylalcohol), or a combination thereof.

1           54. The method of claim 41, wherein the carbon source includes a carbon fiber, a  
2 graphite, an acetylenic carbon, or a combination thereof.

1           55. The method of claim 41, wherein the grid has a resistivity of less than 100  
2 mΩ/cm.

1           56. The method of claim 41, wherein the grid has a resistivity of less than 10  
2 mΩ/cm.

1           57. A method of making a cathode for a battery comprising:  
2           coating an expanded metal grid including an aluminum alloy with a composition  
3           including a carbon source, a binder, and a cathode active material, wherein the cathode active  
4           material includes a manganese dioxide;  
5           drying the grid after coating;  
6           calendering the grid to a thickness of less than 20 mils after drying;  
7           sizing the grid after calendering;  
8           edge-cleaning the grid after sizing;  
9           heat treating the grid after edge-cleaning; and  
10          drying the grid under vacuum after heat treating the grid.